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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Thierry Georges

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YOUNG & THOMPSON
209 Madison Street
Suite 500
ALEXANDRIA, VA 22314

EXAMINER

CARTER, MICHAEL W

ART UNIT

PAPER NUMBER

2828

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DELIVERY MODE

05/01/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,163	Applicant(s) GEORGES, THIERRY	
	Examiner MICHAEL CARTER	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-17, 19-20 is/are rejected.
- 7) ☒ Claim(s) 11 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. **Claims 19 and 20** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claims 19 and 20 recite limitations directed to “the isotropic crystal.” “The isotropic crystal” lacks strict antecedent basis and it is unclear whether the applicant is referring to “an isotropic medium” recited in claim 17, or if the applicant is intending to limit the claim to an isotropic medium which is a crystal. For purposes of the art rejection below, it is assumed that the applicant intends to limit the isotropic medium to a crystal in claims 19 and 20.

Claim Rejections - 35 USC § 102

4. **Claim 13** is rejected under 35 U.S.C. 102(b) as being anticipated by Damen et al., US Patent 4,395,769 (hereinafter referred to as Damen).
5. For claim 13, Damen teaches the method characterized in that the optical path length covered by the laser beam is varied by translating the laser beam emitted by the pumping means with respect to the input face of the amplifier, the laser beam being moved along a plane in which the distance covered by the laser beam in the amplifying medium varies as a function of the latitude of the passage in the amplifying medium (figure 1 and abstract).

Claim Rejections - 35 USC § 103

6. **Claims 1, 5-10, and 12** remain rejected under 35 U.S.C. 103(a) as being unpatentable over Shichijyo et al. US patent 5,809,048 (hereinafter referred to as Shichijyo) in view of Nettleton et al. US Patent 6,373,865 (hereinafter referred to as Nettleton), and further in view of Dixon et al. US Patent 4,884,276 (hereinafter referred to as Dixon) according to the first office action.
7. **Claims 2-4, and 14-16** remain rejected under 35 U.S.C. 103(a) as being unpatentable over Shichijyo in view of Nettleton, and Dixon as applied to claim 1 above, and further in view of Bacher et al. US Patent 7,065,109 (hereinafter referred to as Bacher) according to the first office action.
8. **Claims 17, 19-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shichijyo in view of Nettleton and further in view of Dixon.
9. **Claim 17** is rejected according to the argument made for claim 1 in the first office action.
10. **For claim 19**, Nettleton further teaches the final output face of the amplifying medium is cut at the Brewster angle (figure 2, and column 2, lines 46-50) calculated from the index n_1 ($n_1=1$ air) and from the index n_2 of the isotropic crystal (figure 2, label 22, *Note: label 22 and 21 have the same index*) and the amplifying medium (figure 2, label 21) and the isotropic crystal (figure 2, label 22) are joined to each other on a portion of the final output face (figure 2, label 25).
11. **For claim 20**, the combination further teaches a final output face of the isotropic crystal (figure 4, label 24) is joined to the birefringent crystal (Shichijyo teaches the

birefringent crystal for frequency conversion, figure 13, label 62 while Nettleton teaches joining the frequency conversion element to the isotropic crystal in order to provide a device which requires less alignment according to the argument for claim 1) the isotropic crystal and birefringent crystal have collinear geometrical axes (Nettleton figure 5) and approximately identical refractive index (Nd:YAG and KNbO₃ of Shichijyo have substantially the same index *See Shimoji US Patent 5,838,713 claim 19*) and diameter (figure 2 and 5) and an input face of the isotropic crystal is cut at the final output face so that the laser beam exiting from the amplifying medium and deflected by the final output face passes through the isotropic and birefringent crystals parallel to their geometrical axes (figure 2 and column 2, lines 61-64).

Allowable Subject Matter

12. **Claim 11 and 18** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

13. Applicant's arguments filed 01/28/2008 have been fully considered but they are not persuasive. Applicant argues that Shichijyo teaches the surface of 61 and 62 are in contact, and, consequently, there can be no isotropic medium inserted between the amplifying medium and the birefringent crystal. While the applicant is correct in pointing out that the surfaces "contact" one another, the does not necessarily mean there can be nothing inserted between them. Two counter examples follow. Consider figure 4 of Nettleton. The facing surfaces of OPO 43 and Nd:YAG have a space between them, however, these are in contact via platform 41. As a second example, consider bring two elements into contact with one another where the surface are not perfectly matches. In such a case there would still be pockets of atmosphere.

14. Applicant further argues that the prior art fails to teach the amplifying medium toward the birefringent material is cut according to the Brewster angle. However, Nettleton does teach the limitation. As applicant points out, there are two separate components of gain medium in the Nettleton reference. If one considers the first component (figure 2, label 21), it does teach an amplifying medium toward the birefringent material is cut according to the Brewster angle. The fact that there is a second paired gained medium does not negate the teaching.

15. Applicant argues that Nettleton discloses an abrupt turn is an undesirable trait. While this statement is true, it does not appear to have any direct bearing on the claim limitations recited in claim 1.

16. Finally, applicant argues that the folded cavity in Dixon is in contrast with the linearity expressed by Nettleton. It is unclear. Nettleton teaches a linearly polarized beam while Dixon teaches the appropriate alignment of the polarization with the C-axis. The combination does not, however, depend on the cavity being folded, so the combination is valid.

Conclusion

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Carter whose telephone number is (571) 270-1872. The examiner can normally be reached on Monday-Friday, 7:00 a.m.-4:30 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MinSun Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MC/

/Minsun Harvey/
Supervisory Patent Examiner, Art Unit 2828